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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/378,878	08/23/1999	MARK O. WORTHINGTON	BURST-15	9605

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EXAMINER

BHATNAGAR, ANAND P

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 03/16/2004

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/378,878

Applicant(s)

WORTHINGTON ET AL.

Examiner

Anand Bhatnagar

Art Unit

2623

mn

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-22, 24, 27-32, 36, 37, 39-54, 56, 57, 59-63, 66-74, 133-136, 138-146, 148-181, and 207-212 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) See Continuation Sheet is/are rejected.

7) ☒ Claim(s) 27-30, 37, 71, 138-146, 148, 159-173, 177 and 180 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 15
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims rejected are 1-22,24,31,32,36,39-54,56,57,59-63,66-70,72-74,133-136,149-158,174-176,178,179,181 and 207-212.

Response to Arguments

1. Applicant has amended the specifications as requested by the examiner. Claims 1-22, 24, 27-32, 36, 37, 39-54, 56, 57, 59-63, 66-74, 133-136, 138-146, and 148-181 have been amended. Claims 23, 25, 26, 33-35, 38, 55, 58, 64, 65, 75-132, 137, 147, and 182-206 have been cancelled. Applicant has added six new claims (#207-#212). Currently, claims 1-22, 24, 27-32, 36, 37, 39-54, 56, 57, 59-63, 66-74, 133-136, 138-146, 148-181, and 207-212 are pending.
2. Examiner withdraws the 35 USC 112, 2nd paragraph rejection for claims 5, 7, 11, 13, 15, 43, 49, 51, and 53.

DETAILED ACTION***Claim Rejections - 35 USC § 112***

3. A.) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for "assembling discontinuous data according to the tangential locality of the data on the physical disc surface"(applicant's specification page 14 2nd paragraph), does not reasonably provide enablement for "a substantially tangential direction". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. It is not understood what is meant by a substantially tangential direction since there are a few possible tangential direction to a optical disc (such as in the same plane as the disc but perpendicular to

the edge of the disc, a vertical perpendicular direction to an optical disc, or the same plane as the disc but in a direction going across the tracks on the disc).

B.) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1: It is not understood what is meant by a substantially tangential direction since there are a few possible tangential direction to a optical disc (such as in the same plane as the disc but perpendicular to the edge of the disc, a vertical perpendicular direction to an optical disc, or the same plane as the disc but in a direction going across the tracks on the disc).

Claim 39 recites the limitation "said physically non-identical analyte-specific signal elements". There is insufficient antecedent basis for this limitation in the claim. Are these signals still concurrent?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

A.) Claims 1-4, 9-22, 24, 31, 32, 36, 39-42, 47-54, 56,57, 59-63, 66, 67, 74, 133,149-151, 157, 158, 179, 181 and 207-211 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon (U.S. patent 6,327,031) and Takase et al. (EP 0 417 305 A1).

Regarding claim 1: Gordon discloses a method for analyzing data acquired by reading an optical disc having at least one readable analyte-specific signal element, said method comprising identifying a pattern in said data that reports a physical property of said at least one readable analyte-specific signal element (col. 2 lines 18-40 and 65-67, where a sample "analyte" is attached to a surface of a optical disc and its optical properties "physical property" is determined) said reported physical property being a structural size measured in a substantially tangential direction.

Gordon discloses to analyze patterns of analytes embedded on the surface of an optical disc. Gordon et al. does not teach to obtain a structural size of the analyte in a tangential direction. Takase et al. teaches to obtain quantitative and qualitative values of an analyte (urine, blood, etc.) embedded on an optical disc (Takase et al.; col. 4 lines 30-40 and col. 8 lines 10-25, where the analyte on the optical disc is analyzed in a circumferential direction read as "tangential" direction). It would have been obvious to one skilled in the art to combine the teaching of Takase et al. to that of Gordon because they are analogous in analyzing an analyte embedded on an optical disc. One in the art would have been motivated to incorporate the quantitative and qualitative analysis of an analyte (modified to obtain other parameters such as size, concentration, volume, etc.) of Takase et al. into the system of Gordon in order to create a database of analyte patterns with many parameters so that analytes can be distinguished easily by using these obtained parameters.

Regarding claim 39: It is rejected for the same reason as claim 1 above.

As for the limitations: of a plurality of nonidentical analyte specific signal elements (col. 2 lines 25-31; where Gordon discloses that the sample can be a myriad of biological, chemical, or biochemical samples. It is inherent that it may be one type of sample "analyte" or can be a combination of nonidentical samples "analytes") and identifying performed in a manner that is dependent on absolute position of said pattern in said data (col. 2 lines 25-31; Gordon discloses that the sample can be a myriad of biological, chemical, or biochemical samples. It is obvious to one skilled in the art that identifying the analytes is dependent on the position of their specific/absolute locations in order to track where the analytes are located).

Regarding claim 133: A method for analyzing data comprising: retrieving said data acquired from a trackable optical disc with concurrently readable analyte-specific signal elements said being retrieved from a source selected from a group including a direct source and a stored data source (col. 2 lines 30-42; where the beam is directed on the specimen and the optical data collected "retrieved" and analyzed followed by the outputting of the data that was generated by the radiation beam and wherein the data is collected from an optical disc "direct source").

Regarding claims 2 and 40: The method wherein said data include a digitized sample of at least one analog signal (col. 6 lines 15-20, where the analog signal can stay in the analog mode or be converted to digital samples).

Regarding claims 3, 41, and 207-211: The method wherein said at least one analog signal is derived from at least one signal selected from a group including a high frequency signal, a tracking error signal, a focus error signal, and any combination thereof (col. 2 lines 20-26 and 38-42, where the light/radiation is detected which is a high frequency analog signal).

Regarding claims 4 and 42: The method wherein said at least one analog signal comprises at least two signals selected from a group including a high frequency signal, a tracking error signal, and a focus error signal to thereby form a combined analog signal.

Gordon et al. discloses to analyze the optical properties of an analyte attached to an optical disc. It is inherent that light is an analog signal composed of different analog components (ex. RGB, YCrCb, etc.).

Regarding claims 9 and 47: The method of claim 2 wherein said digital sample is acquired in a substantially continuous manner (col. 6 lines 15-20, where the analog signal is continuous).

Regarding claims 10 and 48: The method wherein said digital sample is acquired in a substantially noncontinuous manner (col. 6 lines 17-21, where the sampling rate is changed, i.e. makes the data noncontinuous because samples are taken and not the whole data, to make the data fit in memory).

Regarding claims 11 and 49: The method wherein said pattern is substantially continuous within said digitized sample (col. 6 lines 15-20 where a continuous signal is obtained).

Regarding claims 12 and 50: The method wherein said substantially continuous pattern corresponds to a length along a track in a radial direction.

It is rejected for the combination of reasons of claim 1 and 11, where the data obtained is from a substance attached to the tracks of an optical disc.

Regarding claims 13 and 51: The method wherein said pattern is substantially discontinuous within said digitized sample.

It is rejected for the same reason as claim 10 above. By setting a sampling rate the complete data is not obtained making in noncontinuous because discrete digital samples are obtained.

Regarding claims 14 and 52: The method wherein said discontinuous pattern corresponds to at least one cluster of data features (col. 2 lines 65-67 and col. 3 lines 2-8, where the optical properties "cluster of data features" are obtained of the sample).

Regarding claims 15 and 53: The method including at least two of said cluster data features, each one thereof corresponding to different analyte-specific signal elements positioned along different turns of said disc.

It is rejected for the combination of claims 12 and 39.

Regarding claims 16 and 54: The method wherein said discontinuous pattern includes multiple data features that correspond to said at least one readable analyte-specific signal element.

It is rejected for the same reason as claim 13 above. Where discrete digital samples "multiple data features" are taken due to the sampling rate.

Regarding claim 17: The method wherein said discontinuous pattern includes at least one discontinuity between two continuous regions, and said discontinuity itself reports a physical property of said at least one readable analyte-specific signal element (fig. 6 elements 44,50, and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where data is taken of the samples on the disc and the discontinuity regions are the areas between the samples "continuous regions").

Regarding claim 18: The method of claim 17 wherein said discontinuity indicates that said continuous regions correspond to structures that are substantially tangentially located with respect to one another (fig. 6 elements 44,50, and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where the samples are in different tracks/wells on the same circumferential track as well as on

different circumferential tracks/wells, the discontinuity regions are on the same track as well as tangentially to each other on the different circumferential tracks).

Regarding claim 19: The method wherein said discontinuity indicates that said continuous regions correspond to structures on the same turn of a track.

It is rejected for the same reason as claim 18 above. There are continuous regions and discontinuous regions on each track that the samples are placed on. There are more than one sample placed on the tracks i.e. more than one continuous region on the track.

Regarding claim 20: The method wherein said discontinuity indicates that said continuous regions correspond to structures on different turns of said disc.

It is rejected for the same reason as claim 19 above.

Regarding claim 21: The method wherein said identifying step includes associating result objects that correspond to said data features (fig. 6 elements 44,50,and 51, col. 2 lines 65-67, col. 6 lines 10-28, and col. 9 lines 25-43, where the sample is identified by its obtained optical properties).

Regarding claim 22: The method wherein said reported physical property is a property disposed tangentially on said disc.

It is rejected for the combined reasons of claims 1 and 18.

Regarding claim 36: The method wherein said reported physical property is independent of an absolute position of said pattern in said data.

It is rejected for the same reason as claim 1. Gordon discloses to obtain the optical properties of a sample(s) which are attached to an optical disc. This type of physical property is independent of the position of the sample.

Regarding claim 56: The method wherein said at least one readable analyte-specific signal element produces an analog signal that has a substantial magnitude in only one turn of

a disc (fig. 6 elements 44, 50, and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where the samples are in different tracks/wells on the same circumferential track as well as on different circumferential tracks/wells, inherently the samples can be placed on one track or more than one track depending on the quantity of results required. If only one track is used than signal is only in one track/turn of the disc).

Regarding claims 31, 57, 66 and 212: The method wherein said identifying comprises identifying a plurality of readable analyte-specific signal (col. 3 lines 9-15, where the samples are quantified "counted").

Regarding claims 32 and 61: The method wherein said physical property depends at least in part upon disposition of said at least one readable analyte-specific signal element on said disc (fig. 6 elements 44, 50, and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where the samples are in different tracks/wells on the same circumferential track as well as on different circumferential tracks/wells, the properties depend on how the samples are oriented "the disposition" on the optical disc, i.e. not considered as the positions of the samples).

Regarding claim 62: The method wherein said physical property depends on an optical interaction between a laser beam, said at least one readable analyte-specific signal element, and the disc (col. 3 lines 18-40, where the results are gathered of the light beam that interacts with the substrate, a layer of the disc, and the sample).

Regarding claim 63: The method wherein said at least one readable analytes-pecific signal element is a translucent bead and said optical interaction is a lensing effect of said bead (fig. 6 elements 44, 50, and 51, and col. 6 lines 25-50; where the wells, into which the samples are filled by microtitration, resulting in microsamples "beads" and induced by light to determine the reflective property "lensing effect" of the sample).

Regarding claim 74 and 181: The method wherein said trackable optical disc includes at least one spiral track (col. 6 lines 10-25 and 43-55, where the light beam is directed in tracks of a optical disc).

Regarding claim 59: The method wherein said at least one class of analyte-specific signal elements produces an analog signal that has a substantial magnitude in two or more different turns of a track.

It is rejected for the combination of claims 18 and 26 above.

Regarding claim 60: The method wherein said identifying comprises using relative positions of the patterns on the disc.

It is rejected for the same reason as claim 32 above. Where the disposition is taken as the relative position of the sample "pattern".

Regarding claim 67: The method further comprising outputting a report that includes results of said identifying.

It is rejected for the same reason as claim 39 where the results are outputted.

Regarding claims 149, 150, and 157: Gordon does not teach to use filtering to reduce the amount of data. It is a well known concept to use a filtering to reduce data by eliminating unwanted noise or other unwanted frequency signals. Examiner takes Official Notice.

Regarding claim 151: The method further comprising acquiring said data using an optical disc reader.

It is rejected for the same reason as claim 133 above.

Regarding claim 158: The method wherein said analyzing comprises processing one or more data records.

It is rejected for the same reason as claim 133 above. Where more than one data is obtained.

Regarding claim 179: The method wherein any of said retrieving, analyzing, generating, and outputting can be performed iteratively.

It is rejected for the same reason as claim 39 above.

B.) Claims 5-8 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031), as modified by Takase et al. (EP 0 417 305 A1) and further in view of Oguro (U.S. patent 6,344,939 B2).

Regarding claims 5 and 43: The method further including the step of quantizing said combined analog signal to form said data.

Gordon et al. discloses to obtain optical properties of a sample attached to an optical disc. The light/radiation values obtained of the sample are a single analog signal with multiple analog components. Gordon et al. does not teach to quantize this combined analog signal. Oguro teaches to quantize a combined analog signal (Oguro; fig. 22b elements 8a-8c, 10, and 14, col. 4 lines 45-52, col. 9 lines 53-67, and col. 10 lines 1-25, where different analog signals are combined and then quantized). It would have been obvious to one skilled in the art to combine Oguro to Gordon et al. because they are analogous in analog and digital signal manipulation from recording mediums. One would have been motivated to incorporate the quantizer of Oguro and incorporate it into the system of Gordon et al. to quantize the analog light signal to create data steps to limit the data size which makes it more efficient for storage.

Regarding claims 6 and 44: Oguro further teaches a method wherein said combining said combined analog signals is formed by combining said at least two signals in a synchronized manner (Oguro; fig. 22b element 28 and col. 11 lines 33-40, where the microcomputer controls and synchronizes the signals).

Regarding claims 7 and 45: The method further comprising the steps of: quantizing each of said at least two analog signals to form individual digitized data sets combining said individual digitized data sets to form said data.

It is rejected for the same reason as claims 5 and 6 above. As for the following limitation of combining the data sets (Oguro; col. 10 lines 5-15, where the data is placed into blocks).

Regarding claims 8 and 46: The method wherein said combining of said data sets comprises combining in a synchronized manner.

It is rejected for the same reason as claim 6 and 44 above.

C.) Claims 68-70, 72, 73 and 178 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031), as modified by Takase et al. (EP 0 417 305 A1), and further in view of Maruyama et al. (U.S. patent 6,453,119 B1).

Regarding claims 68-70:

Gordon et al. discloses a sample analysis system where a sample is attached to an optical disc. Gordon does not disclose to visually display the results on an electronic display nor on a tangible medium. Maruyama et al. teaches to display the analysis from an optical disc on a electronic display as well as on a tangible medium (printer) (Maruyama et al. fig.19 elements 48, P1, and P2). It would have been obvious to one skilled in the art to combine Maruyama et al. to Gordon et al. because they are analogous in analysis of an optical recording medium. One would have been motivated to incorporate the display and printer of Maruyama et al. into the system of Gordon et al. to have the ability to see the results of the analysis either on a display, paper, or both.

Regarding claim 72: The method wherein said outputting comprises transmitting said report remotely (Maruyama et al. fig.19 elements 48, P1, and P2, where the results are transmitted to the display and printer).

Regarding claim 73: The method wherein said outputting comprises storing said report in a manner selected from a group comprising transient storing and permanent storing (Maruyama et al.; fig. 19 element 30 where the results are stored in a memory).

Regarding claim 178: The method wherein said outputting is selected from a group consisting of storing, displaying, and printing.

It is rejected for the combination of claims 68-73.

D.) Claims 134-136 and 174-176 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031), as modified by Takase et al. (EP 0 417 305 A1), and further in view of Ota et al. (U.S. patent 5,920,529).

Regarding claim 134-136 and 174-176: Gordon et al. discloses an optical disc analysis system, of a sample attached on the disc. Gordon et al. does not teach to initialize a parameter before analyzing data. Ota et al. teaches to initialize a memory parameter before analyzing the data from a recording medium (Ota et al.; fig. 1 elements 3,4, and 5, col. 6 lines 55-67 and col. 7 lines 1-5, where the information is first placed in memory "initialized" followed by data analysis). It would have been obvious to one skilled in the art to combine Ota et al. to Gordon et al. because they are analogous in data analysis from a recording medium. One in the art would have been motivated to incorporate the memory initialization and storing of data of Ota et al. to the system of Gordon et al. in order to preserve the data if the analysis, of the same data, will need to be performed another time.

Regarding claim 136: As for the limitation of the default value of the memory: (Ota. et al. col. 7 lines 60-67 and col. 8 lines 1-7, where the address of the data is registered and updated as the data changes. If no data is present then obviously the register is going to have a default value of zero).

E.) Claims 152-156 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031), as modified by Takase et al. (EP 0 417 305 A1), and further in view of Ando et al. (U.S. patent 56,505,964).

Regarding claims 152-156: Gordon et al. discloses an optical disc analysis system, of a sample attached on the disc. Gordon et al. does not disclose to have a start and end markers as well as logical and physical markers. Ando et al. teaches to have a lead in area (start marker), a lead out area (stop area), logical sector, and data sector (physical marker) (Ando et al. fig. 1, col. 7 lines 32-44). It would have been obvious to one skilled in the art to combine Ando et al. to that of Gordon et al. because they are analogous in optical disc analysis. One in the art would have been motivated to incorporate these features of Ando et al. into Gordon et al. in order to synchronize the system of when to start/stop and to show the position of the data on the disc.

Allowable Subject Matter

5. Claims 27-30, 37, 71, 138-146, 148, 159-173, 177, and 180 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2623

Contact Information

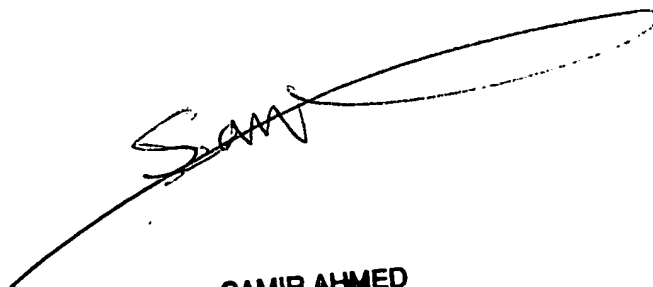
6. Any inquiry into this communication should be directed to Anand Bhatnagar whose telephone number is 703-306-5914, whose supervisor is Amelia Au whose number is 703-308-6604, group receptionist is 703-305-4700, and group fax is 703-872-9306.

AB

Anand Bhatnagar

Art Unit 2623

March 6, 2004

A handwritten signature in black ink, appearing to read 'SAMIR', with a long, sweeping horizontal stroke extending to the right.

**SAMIR AHMED
PRIMARY EXAMINER**